

ONTARIO. MINISTRY OF THE ENVIRONMENT

Sanitary survey of Echo Bay District  
of Algoma.

1976

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SANITARY SURVEY

of

ECHO BAY

District Of Algoma

1976

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Pollution Control Programme  
1976

District of Algoma  
ECHO BAY

The field work included in this report was  
completed by the staff of the Sault Ste. Marie  
District Office, Municipal and Private Abatement  
Section

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SUMMARY

A study of the sanitary and environmental conditions of permanent and seasonal dwellings in Echo Bay was conducted May 18, 19, 20, 21, 1976. The survey concentrated on the type and condition of the various sewage disposal systems, the method of refuse disposal, and drinking water quality. All premises were visited but only 91 of the owners were interviewed. In the case that the owner was unavailable, inspection was limited to site evaluation.

A majority of residents reported that they utilize the Township of MacDonald waste disposal site for refuse disposal. A collection service operated by J. Mason which serves twenty-six homes also uses the MacDonald Township site.

Directly discharged grey water to the ground surface was reported at twelve locations. The owners concerned were advised to install acceptable disposal systems.

Drilled wells are used by the majority of residents for drinking water supplies. All sources were sampled for bacteriological examination. Residents drinking water from unpotable sources were informed of practices for effective disinfection of the water to use prior to consumption.

Determinations for ground water table depth below grade were incorporated into the study. The nature of the upper soil horizons was also noted. The range in depth of the water table below grade varied from two inches to greater than 54 inches.

## INTRODUCTION

Echo Bay is located approximately 15 miles east of Sault Ste. Marie on Highway 17. A survey was conducted as part of the Ministry of the Environment's ongoing programme of small community development studies. The data generated by the study is used to identify and upgrade faulty disposal systems and practices.

The present development includes 143 dwellings. Ninety-one of the owners were contacted and of these only three are seasonal residents.

## DISCUSSION

### 1. Disposal Facilities

#### (a) Refuse Disposal

The Township of MacDonald waste disposal site is used by the majority of residents of Echo Bay. The collection service operated by J. Mason also uses this site. Four residents reported that they burn non-putrescible wastes and were notified that this is contrary to the Ontario Environmental Protection Act.

The following data was generated:

- (i) Refuse personally transported to MacDonald..... 58  
Township site
- (ii) Collection service - J. Mason..... 26
- (iii) Burned on Lot..... 4

#### (b) Sewage Disposal

Pit privies (Class 1 sewage systems) were used by 15 of the residents for sewage disposal. Septic tank systems (Class 4)



were used by the remainder of the residences interviewed (76).

Three substandard systems were encountered in Echo Bay. These were as follows:

- (i) A. Collings..... pit privy less than 50 ft from lake water
- (ii) C. Milligan..... plywood septic tank system
- (iii) T. Amellotte.... homemade chemical-septic tank system

These cases were brought to the attention of the Algoma Health Unit for their action.

(c) Grey Water (Kitchen-Bath Waste)

The majority of people in Echo Bay combine their grey water disposal with their septic tank systems. Several residents reported that they discharge grey water to the ground surface and were encouraged to seek an alternative and acceptable method for grey water disposal.

The actual survey data is:

- (i) combined (To septic tank system).... 46
- (ii) ground surface discharge..... 12
- (iii) separate system (leaching pit)..... 22

## 2. Drinking Water

All drinking water sources were sampled for bacteriological examination. The majority of residents of Echo Bay use drilled wells as drinking water sources and several others used water from holding tanks or the town well.

The actual data is as follows:

(i)	Drilled wells.....	56
(ii)	Town well users.....	13
(iii)	Holding tanks -source, S.S. Marie...	13
(iv)	Dug wells.....	2

Bacteriological examination results are summarized in Appendix II. Those residents drinking unpotable water were informed of proper practices for disinfection of the water prior to use.

### 3. Water Table Below Grade

Holes were dug at various locations in Echo Bay with the use of a two inch hand auger. A map is included as Appendix III to indicate the locations of the twenty test holes.

The soil varied from a sandy to a very high clay content. In most instances, clay content increased greatly with depth. The depth of the water table below grade fluctuated from two inches to greater than fifty-four inches.

The low lying nature of the area and the shallow position of the water table in Echo Bay should be significant factors to consider prior to septic tank system approval.

RECOMMENDATIONS

1. That the Algoma Health Unit be contacted to ensure that upgrading of substandard systems is complete.
2. That the soil nature and depth to water table at each separate site be given very special consideration prior to septic tank system approvals.
3. That those residents who reported ground surface discharge of grey water be contacted again to ensure that acceptable grey water disposal systems have been installed.

G L O S S A R Y1. ALKALINITY:

A measure of water's capacity to neutralize acids, due primarily to salts of the weak acids. (Bicarbonates represent the major form).

2. CHLOROPHYLL a:

A photosynthetic green pigment in algae and its concentrations can be used to give a rough indication of biological activity in a lake.

3. COLIFORM BACTURE:

Bacteria which are considered as a reliable indicator of pathenogenic or disease oriented organism.

4. FAECAL COLIFORMS:

A species of bacteria associated with human and animal faecal matter which indicates a relatively recent pollution input.

5. FAECAL STREPTOCOCCI:

Bacteria, largely associated with animal faecal matter and to a lesser extent man. As a result, they may be used to gain information regarding contaminant sources.

6. GREY WATER:

Disposal water from sink, laundry, and both facilities.

7. HARDNESS:

A measure of the "soap consuming power" of water due to the presence of metallic cations. The principle components of hardness are calciu, and magnesium.

8. Mg/l:

Milligrams per litre

9. SECCHI DISC:

A disc measuring 20 cm in diameter and divided into black and white quadrants. The disc measures the transmission of light vertically through surface waters.

Appendix IAuger Samples

- A. Sandy  
25 inches water  
swampy area
- B. Sandy clay - very wet  
could only dig 12 inches down, no water  
sandy clay on surface  
clay content increased with depth
- C. Top soil (sandy material)  
30 inch hole  
no water  
all sand
- D. Six inches of top soil  
gravel base  
no water
- E. Near bay  
20 inches to water level  
sandy clay  
little top soil, 1 1/2 inches
- F. Boat launch  
wet soil  
42 inch hole  
no water
- G. Brown top soil - sandy four inches  
sand colour, became lighter with depth  
23 inch hole, no water  
soil was damp
- H. 54 inch hole  
soil very black for six inches  
clay content increases with depth - red clay  
no water
- I. Sandy soil, some loose gravel  
top soil four inches  
soil was damp  
12 inch hole
- J. Bush area just off The Drive  
the soil colour changed from dark red as  
soil depth increased  
no water at 40 inches, however, the soil was damp
- K. Sandy soil  
18 inch hole  
no water was encountered

## Auger Samples, cont'd.)

- L. Soil was damp about  
10 inches down  
clay material  
hole 54 inches - no water  
clay content increased with depth
- M. Hole 48 inches  
clay content increased with depth
- N. Hole 54 inches  
no water  
very thin layer of top soil, one to two inches  
to support the grass vegetation  
clay content increases with depth
- O. Thin layer of top soil, one to two inches  
grass like vegetation  
moss base - indication of swamp tendencies  
clay content increases with depth  
54 inch hole
- P. Drier area  
54 inch hole  
no water  
clay content increases with depth
- Q. Vacant lot  
16 inch hole  
loamy sand one inch  
as depth increased the sand content increased  
underlying bedrock
- R. Vacant lot (same as Q)  
beside water hole  
very gravelly  
water encountered at nine inches  
acidic soil, due to coniferous vegetation  
clay content increases with depth
- S. Coniferous vegetation  
acidic soil  
19 inch hole  
water was found at 18 inches  
peat contents in the soil - humus topsoil
- T. Swampy area  
end of Birch Street  
swamp grass and reeds predominate the area  
two inch water  
clay - little top soil about 1/2 inch

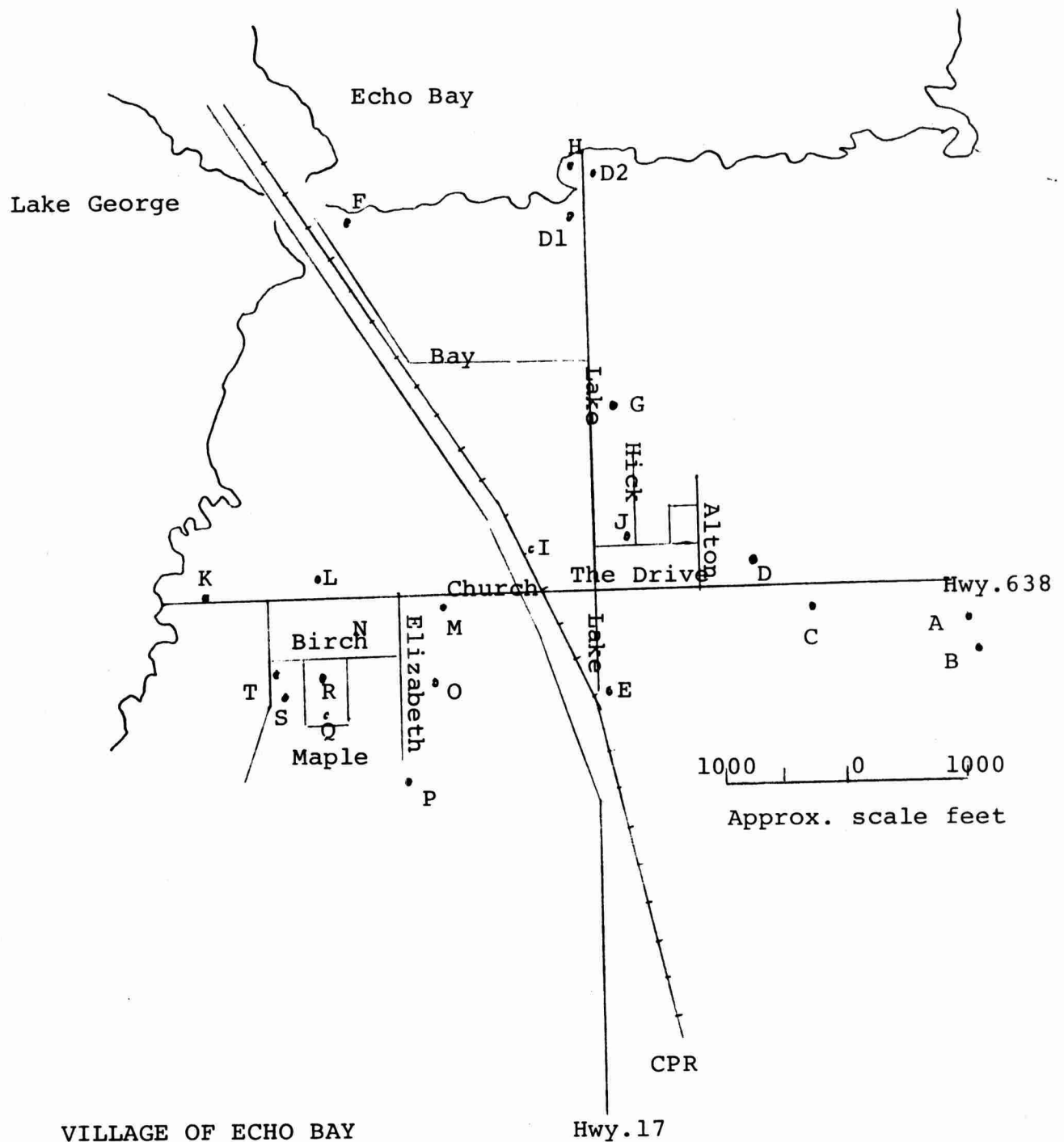
Appendix IIDRINKING WATER SAMPLES

<u>Name</u>	<u>Sample #</u>	<u>Date</u>	<u>Total Coliforms</u>	<u>Faecal Coliforms</u>
B. Alton	(L51)	May 21/76	0	0
W. Alton	(T104)	May 20/76	0	0
R. Booth	(T111)	May 20/76	0	0
C. Bolles	(T126)	May 20/76	0	0
N. Bramham	(L9a)	May 19/76	0	0
D. Cavin	(T125)	May 20/76	0	0
A. Clark	(L17)	May 20/76	0	0
S. Collins	(T120a)	May 20/76	0	0
A. Corboy	(L21)	May 20/76	0	0
S. Coulter	(T102)	May 20/76	0	0
R. Crawford	(T51)	May 21/76	0	0
J. Dawson	(T103)	May 20/76	0	0
J. Findlay	(L12)	May 20/76	0	0
M. Findlay	(T129)	May 20/76	0	0
M. Granger	(T101)	May 20/76	0	0
J. Grasley	(T2)	May 19/76	0	0
R. Grawbarger	(L6)	May 19/76	0	0
N. Hambley	(L16)	May 20/76	0	0
B. Howard	(L50)	May 21/76	0	0
J. Howard	(T50)	May 21/76	0	0
B. Humphries	(L9)	May 19/76	0	0
A. Hurley	(T8)	May 19/76	0	0
N. Hurley	(L18)	May 20/76	0	0
R. Hurley	(R7)	May 19/76	0	0
W. Hurley	(L26)	May 20/76	0	0
J. Jurczenko	(L11)	May 20/76	0	0
W. Kellet	(L23)	May 20/76	0	0
S. Kennedy	(54)	May 21/76	0	0
H, Kylie	(T130)	May 20/76	0	0
B. Laroque	(R. 2)	May 19/76	0	0
L. Levering	(T5)	May 19/76	0	0

R. Maille	(L14)	May 20/76	0	0
J. McClenaghan	(T105)	May 20/76	0	0
A. McKinnon	(L15)	May 20/76	0	0
W. McKinnon	(L7)	May 19/76	48	0
AMcLean	(L22)	May 20/76	0	0
H. McLean	(L2)	May 18/76	0	0
R. McLey	(R3)	May 19/76	0	0
A. Mick	(R6)	May 19/76	10	2
G. Miller	(R1)	May 18/76	0	0
C. Milligan	(L30)	May 20/76	0	0
E. Mills	(L5)	May 19/76	0	0
I. Mills	(T53)	May 21/76	0	0
M. Orchard	(T127)	May 20/76	0	0
C. Patrick	(L20)	May 20/76	0	0
M. Peer	(R4)	May 19/76	0	0
Public School	(T120)	May 20/76	0	0
C. Robinson	(T6)	May 19/76	0	0
M. Sefleris	(L13)	May 20/76	0	0
C. Sonke	(L1)	May 18/76	0	0
A. Smith	(R5)	May 19/76	0	0
F. Thompson	(L31)	May 20/76	80+	8
Town Pump	(T10)	May 19/76	0	0
Town Pump	(R8)	May 19/76	4	0
Town Pump	(L100)	May 19/76	0	0
Town Pump	L101)	May 20/76	0	0
Town Pump	(T100)	May 20/76	2	2
Town Pump	(L200)	May 21/76	0	0
Town Pump	(T200)	May 21/76	0	0
C. Vaughan	(T128)	May 20/76	0	0
L. Vidal	(T4)	May 19/76	0	0
L. Watson	(T52)	May 21/76	0	0
W. Eatson	(T1)	May 18/76	0	0
L. Wiggins	(L12)	May 20/76	0	0
A. Wilkins	(T120)	May 20/76	80+	80+
F. Wilson	(T3)	May 19/76	0	0
D. Wonnacott	(L10)	May 19/76	0	0
R. Wonnacott	(L3)	May 18/76	0	0
187 Lake Street	(L25)	May 20/76	80+	80+



Appendix III



VILLAGE OF ECHO BAY  
MAY, 1976  
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